



Tar and Chip Program

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Agenda



What is Tar and chip

Tar and chip in Delaware

Challenges

Success



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Do you know what DelDOT's Tar and Chip Program is?

Yes

No

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Tar and Chip 101

- Tar and chip is another name for a chip seal.
- A chip seal is a two-step process which includes first an application of asphalt emulsion and then a layer of crushed rock to an existing asphalt pavement surface.
- A Chip Seal's purpose is to seal the road from water penetrating which can shorten the life span of the road and provide a durable high friction wearing surface for traffic.
- Chip seal is a pavement preservation method to extend the life of a hot mix pavement.
- Delaware mainly uses on existing prime and chip roads.

Tar and Chip in Delaware

- Most of the tar and chip roads started as dirt roads.
- The base was stabilized with asphalt or cement and that was topped with a layer or two of tar and chip which was referred to a prime and chip since it was not put on an existing pavement.
- These roads have been tar and chipped every 4-6 years giving us the roads we have today.
- This created poorly riding roads with high crowns.
- We have made recent improvements to fix these issues that I will cover later.

History

- A few archive photos to show the history of the transition of the dirt roads to the surface treated road we have today.



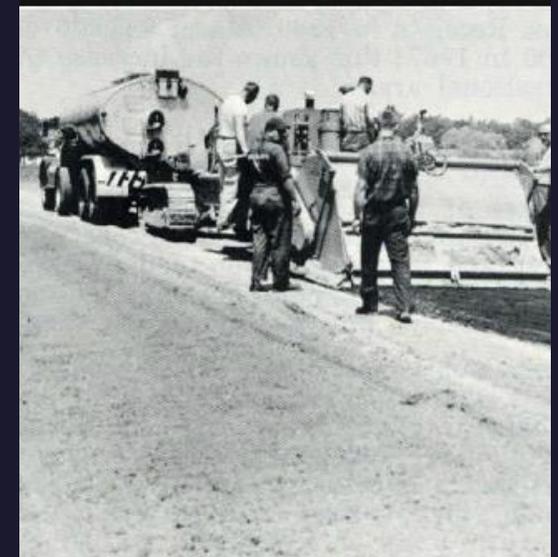
BEFORE CONSTRUCTION OF DIRT ROAD 363 - KENT COUNTY



AFTER CONSTRUCTION OF DIRT ROAD 363 - KENT COUNTY



Deterioration of surface-treated road due to prolonged cold weather.



Stabilizing a dirt road in Sussex County.

History

- Throughout the years, roads were chipped with a single layer chip seal using 3/8" aggregate.
- Today, there is ~4" of stabilized base and 1.5"-2" of Chip Seal which are referred to as Prime Chip Roads.



Typical dirt road after reconstruction.

Cow Marsh Creek Road



Cost

- Work done with inhouse crew. Materials are the only cost for chip seal.

Material	Cost
Stone	\$45.00/ ton
Emulsion (CRS-2hL)	\$2.00/ gal

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How do you feel about tar and chip roads?

I don't like them

They are great

I have no idea what a
tar and chip road is

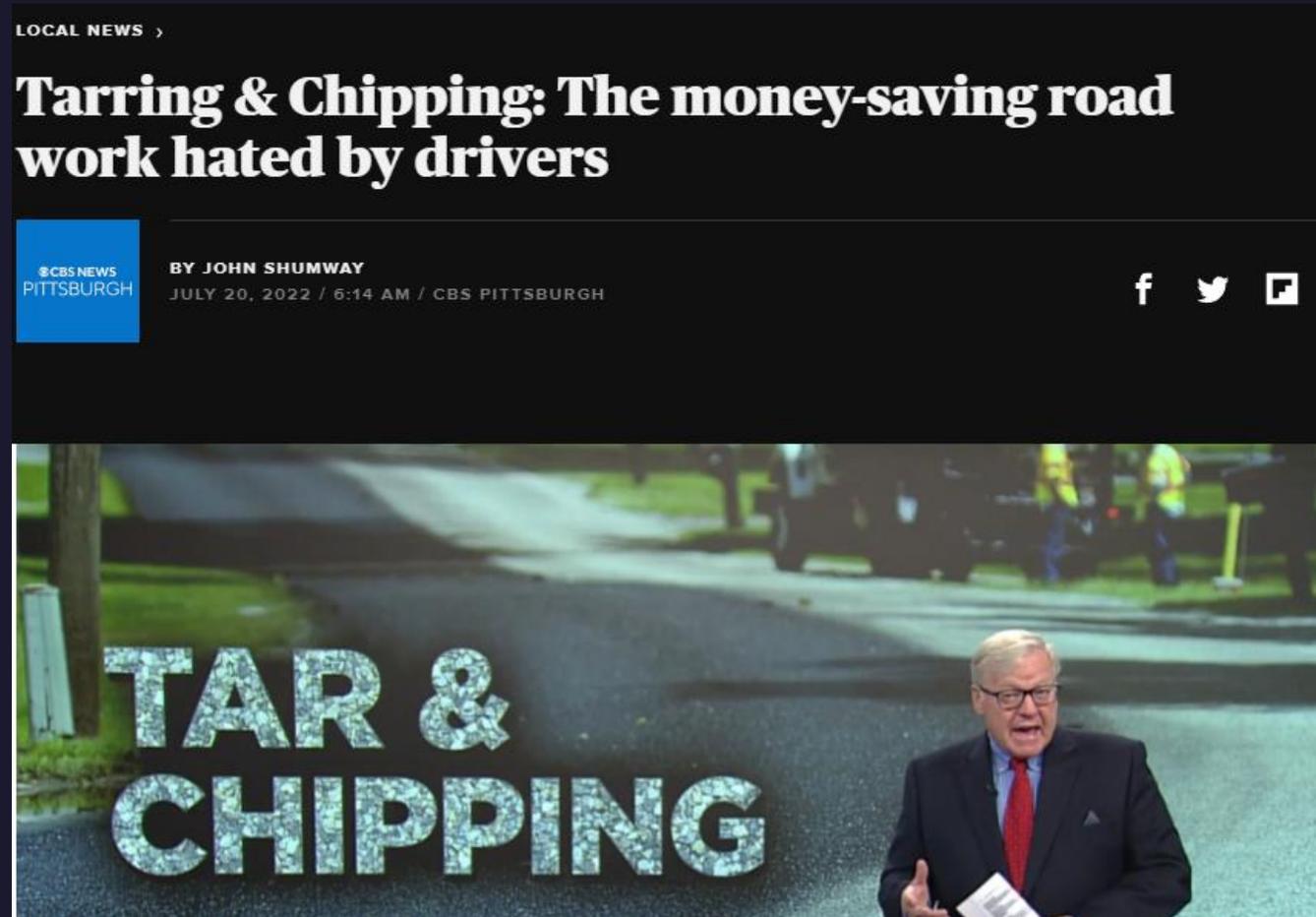
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Challenges

PUBLIC PERCEPTION

- People just don't like it
- Complaints



Challenges

MATERIALS

- **Stone**
- No quarries in Delaware
- supply you are competing with the hot mix plants
- Too tight of specifications limit suppliers
- **Emulsion**
- Compatibility issues with stone
- Suppliers don't like to share information



Challenges



EQUIPMENT

- Most equipment used only in the chip seal operation only used 2 months a year.
- Sitting unused is not good for modern diesel equipment
- Sorting of new equipment

Success

MATERIAL

- Made changes to CRS-2P emulsion spec to improve chip retention and decrease amount of time before sweeping.
- Used Standard AASHTO #8 stone for gradation and focused on stone compatibility with emulsion.



Success

RIDEABILITY

- Started fixing edges with small paver/maintainer with 4' hot mix strip.
- Medium sized rental paver used to do a wider strip to try to improve some of the cross-slope problems.
- Now using a full-sized paver to pave most of the lane to totally correct cross slope and make great improvements to the rideability of the road.



Success

FOG SEAL

- Started fog sealing to improve chip retention.
- Got a positive response from the traveling public and even the bicycle community.
- We now intend to fog seal every road we chip seal.



What is the biggest problem with pavements in Delaware?

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Summary

- We have had success with the improvements we made in the last few years to our Tar and Chip program, but the continued success depends on the continuation of the program.



Thank You

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